

Serial No. 09/626,127

Amendment Dated July 14, 2003

Reply To Office Action Of March 12, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listing of the claims in the application.

LISTING OF THE CLAIMS:

Applicant has amended claim 2, renumbered previously introduced claims 3-8 as claims 64-69 and add new claims 70-90, as follows:

Claim 1 (canceled)

Claim 2 (Amended): A recombinant expression construct comprising a nucleotide sequence encoding a mammalian lysosomal enzyme and a promoter that regulates the expression of the nucleotide sequence in a plant cell.

Claims 3-64 (canceled)

Claim 64 (Previously presented as claim 3, now renumbered): A recombinant expression construct as set forth in claim 2, wherein said recombinant expression construct is a recombinant viral expression construct.

Claim 65 (Previously presented as claim 4, now renumbered): The recombinant expression construct as set forth in claim 2, wherein the lysosomal enzyme is lipase.

Claim 66 (Previously presented as claim 5, now renumbered and amended): The recombinant

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expression construct as set forth in claim [3] 64, wherein the lysosomal enzyme is lipase.

Claim 67 (Previously presented as claim 6, now renumbered): The recombinant expression construct as set forth in claim 2, wherein the lysosomal enzyme is alpha galactosidase.

Claim 68 (Previously presented as claim 7, now renumbered and amended): The recombinant expression construct as set forth in claim [3] 64, wherein the lysosomal enzyme is alpha galactosidase.

Claim 69 (Previously presented as claim 8, now renumbered): The recombinant expression construct as set forth in claim 2, wherein the lysosomal enzyme is glucocerebrosidase.

Claim 70 (New): The recombinant expression construct as set forth in claim 2, wherein the mammalian lysosomal enzyme is a human lysosomal enzyme.

Claim 71 (New): A method for producing a lysosomal enzyme which is enzymatically active, comprising the steps of:

making a (+) sense single stranded RNA plant viral vector that includes a recombinant expression construct having a nucleotide sequence encoding a mammalian lysosomal enzyme and a promoter that regulates the expression of the nucleotide sequence in a plant cell;

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transfecting a plant cell or plant with said viral vector and allowing said viral vector to express human lysosomal enzyme in the plant cell or plant; and

extracting the human lysosomal enzyme from the plant or plant cell.

Claim 72 (New): A method for producing a lysosomal enzyme which is enzymatically active, comprising:

recovering the lysosomal enzyme from (i) a plant cell or (ii) a cell, tissue or organ of a plant, which plant cell or plant is transfected with a recombinant (+) sense single stranded RNA plant viral expression construct comprising a nucleotide sequence encoding the lysosomal enzyme and a promoter that regulates expression of the nucleotide sequence so that the lysosomal enzyme is expressed by the plant cell or plant.

Claim 73 (New): The method according to claim 72, in which the plant is a tobacco plant.

Claim 74 (New): The method according to claim 72, in which the lysosomal enzyme is a human lysosomal enzyme.

Claim 75 (New): The method according to claim 74, in which the lysosomal enzyme is an esterase, acylase, alpha.-N-acetylgalactosaminidase, acid lipase, alpha.-galactosidase, alpha.-L-iduronidase, iduronate sulfatase, alpha.-mannosidase or sialidase

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Claim 76 (New): The method according to claim 72, in which the lysosomal enzyme is a human α -galactosidase.

Claim 77 (New): A recombinant plant viral expression construct comprising a nucleotide sequence encoding a human lysosomal enzyme and a promoter that regulates the expression of the nucleotide sequence in a plant cell.

Claim 78 (New): The recombinant plant viral expression construct of claim 77, in which the human lysosomal enzyme is an esterase, α -N-acetylgalactosaminidase, acid lipase, α -galactosidase, α -L-iduronidase, iduronate sulfatase, α -mannosidase or sialidase.

Claim 79 (New): The recombinant plant viral expression construct of claim 78, in which the human lysosomal enzyme is a human α -L-iduronidase.

Claim 80 (New): A plant which is transfected with the recombinant plant viral expression construct of claim 77.

Claim 81 (New): A plant cell, tissue or organ which is transfected with the recombinant plant viral expression construct of claim 77.

Claim 82 (New): The plant or plant cell of claim 81, in which the lysosomal enzyme is an esterase, α -N-acetylgalactosaminidase, acid lipase, α -galactosidase, α -L-iduronidase, iduronate sulfatase, α -mannosidase or sialidase.

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Claim 83 (New): The plant or plant cell of claim 82, in which the lysosomal enzyme is a human α -L-iduronidase.

Claim 84 (New): A leaf, stem, root, flower or seed of the plant of claim 83.

Claim 85 (New): A lysosomal enzyme which is enzymatically active and is produced according to a process comprising:

recovering the lysosomal enzyme from (i) a plant cell or (ii) a cell, tissue or organ of a plant which plant cell or plant is transfected with a recombinant plant viral expression construct comprising a nucleotide sequence encoding the lysosomal enzyme and a promoter that regulates expression of the nucleotide sequence so that the lysosomal enzyme is expressed by the plant cell or plant.

Claim 86 (New): The lysosomal enzyme of claim 85, in which the plant is a tobacco plant.

Claim 87 (New): The lysosomal enzyme of claim 85, in which the lysosomal enzyme is an esterase, α -N-acetylgalactosaminidase, acid lipase, α -galactosidase, α -L-iduronidase, iduronate sulfatase, α -mannosidase or sialidase

Claim 88 (New) The method according to claim 87, in which the lysosomal enzyme comprises:

an enzymatically active fragment of an esterase α -N

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acetylgalactosaminidase, acid lipase, .alpha.-galactosidase, .alpha.-L-iduronidase, iduronate sulfatase, .alpha.-mannosidase or sialidase having one or more naturally-occurring amino acid additions, deletions or substitutions.

Claim 89 (New): The lysosomal enzyme of claim 85 that is a hydrolase.

Claim 90 (New): A method for producing a human glucocerebrosidase which is enzymatically active, comprising:

recovering the human glucocerebrosidase from (i) a transgenic plant cell or (ii) a cell, tissue or organ of a transgenic plant, which transgenic plant cell or plant is transformed with a recombinant expression construct comprising a nucleotide sequence encoding the human glucocerebrosidase and a promoter that regulates expression of the nucleotide sequence so that the human glucocerebrosidase is expressed by the transgenic plant cell or plant.